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ABSTRACT

Entrepreneurship education is and will likely continue to be affected by various societal, technological, educational, labor force, management, ideological, family, and institutional trends. In the area of the economy, these trends include a rise of middle-class society, the integration of the national economy, and the integration of the national and international economies. Trends in the area of technology include the growth of research and development as a factor in the economy, the development of mass media in telecommunications and printing, and major medical advances. Expanding education and training throughout society, greater involvement of business in training and education, and greater emphasis on assessing program outcomes and effectiveness are trends likely to change the education sector. Labor force and work trends include greater specialization, a growth in the service sector and further decline in the agricultural and manufacturing sectors, more women and minorities in the labor force, later retirement, and a decline in unionization. Management will be affected by an increase in the number of entrepreneurs, a reduction in the number of management levels, and the demise of command-and-control management as information-based organizations become the norm. Institutional trends include increases in the role of state and local governments, big business, multinational corporations, future studies and forecasting, and the demand for social responsibility. (MN)

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SEVENTY-ONE TRENDS THAT MAY AFFECT ENTREPRENEUR EDUCATION FOR FUTURE WORLD MARKETS

JUNE 8, 1988

U.S. DEPARTMENT OF EDUCATION
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Presented by: **Marvin Cetron**

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SEVENTY-ONE TRENDS THAT MAY AFFECT ENTREPRENEUR EDUCATION FOR FUTURE WORLD MARKETS

General Long-Term Societal Trends

1. Economic prosperity—affluence, low interest rates, low inflation rate

- Per capita personal income increased 1.4% annually (1973-83); projected to average 1.8% annually (1983-2000).
- Part of society's affluence rests on credit card use or overuse; extension of excessive credit could result in government-imposed limitations.
- Intolerable high in 1981 has resulted in "managed" (by the Federal Reserve Board) low interest rates.
- Intolerable high in 1980 has resulted in monetary policies which tend to assure low inflation rates.
- FRB monetary policies instituted by Volker will be continued by Greenspan to keep interest and inflation rates in check.
- There may be a recession in 1990, but this will only be a perturbation. Our long-range forecast for the economy is good.

2. Rise of knowledge industries and a knowledge-dependent society

- About half of all service workers (44% of labor force by 2000) will be involved in collecting, analyzing, synthesizing, structuring, storing, or retrieving information as a basis of knowledge.
- Half of these people will be working at home.
- By 1995, 80 percent of all management will be knowledge workers.
- There will continue to be vast opportunities within the computer industry for developers of hardware and software.
- Expert Systems will issue reports and recommend actions on data gathered electronically without human intervention.
- Investment in expert systems and related technologies should top $1.3 billion this year—three times the amount in 1985.
- Industries that will benefit from their uses: insurance, investments and banking; manufacturing and process control; equipment diagnosis and quality control.

- By 2001, nearly all college textbooks and many high school and junior high books will come with computer disks to aid in learning.
- Computers will provide access to all the card catalogs of all the libraries in the world by the late 1990s. Millions of volumes can be called up on a PC screen from distant libraries. Videodiscs will enhance books by providing visual and audio information and even recordings of smells, feels, and tastes.
- Many encyclopedic works, large reference volumes, and heavily illustrated manuals will be more economical to produce and sell through electronic packaging. Videodisc will fill this need.

3. Fewer very poor and very wealthy in our society

- Number of households 1970-1985:
  - Annual income under $5,000 (8.4-6.6% of total) *increased* 25% in 85$
  - Annual income over $50,000 (11.1-14.8% of total) *increased* 82% in 85$.
- Number of families 1970-1985:
  - Annual income under $5,000 (3.3-5.2% of total) *increased* 54% in 85$
  - Annual income over $50,000 (13.0-18.3% of total) *increased* 71% in 85$.

But the new tax law will tend to reverse these trends:

- Fewer loopholes (such as the oil depletion allowance, accelerated depreciation allowances, alternate taxes for bond income) mean the wealthy will pay more tax.
- The burden for poorer taxpayers will be eased.

4. Urbanization and suburbanization of rural land

- Land in farms has decreased steadily since 1959 (1% per year, 1975-1985).
- Greatest development in suburbs (rather than cities): land is cheaper and road systems provide good accessibility.

5. Rise of the middle class society

- Fewer very poor/very rich (see #4 above).
- Middle three-fifths of families have received 52-54% of income since 1950.

6. Cultural homogenization—the growth of a national society

- What we see and hear is a leavening influence—we see the same movies and TV programs.

- Schools teach essentially the same thing across the country.
- Intermarriages tend to mix cultures geographically, ethnically, etc.
- More travel—better roads (especially the Interstate system) and accommodations, more leisure time, greater affluence. (4% per year [1981-85] increase in common carrier passenger miles, all modes).

7. Growth of permanent military establishment

- 1.4M-3.6M active duty military personnel since WW2.
- Smart weapons may tend to reduce military personnel requirements.
- Compulsory national service (2-years, male and female) is likely by 2000 with 3 options: military service, VISTA-type (work with disadvantaged), or Peace Corps.

8. Mobility, a) personal, b) physical, c) occupational, d) job

- 41.7% of population moved in period 1980-1985.
- Dual-career families, perhaps working in different cities, affect personal mobility.
- Transportation systems are available and accessible to all.
- Occupational mobility occurs as people increasingly retrain for new careers.
- Job mobility, i.e., changing location or firm but doing the same work, will increase.
- Movement of jobs to sunbelt states, right-to-work states, or near water.

9. International affairs and national security as a major societal factor

- More international travel for business and pleasure.
- More foreign student exchange programs/participation.
- More East-West observation/verification activity, e.g., NATO observers at Warsaw Pact war games, and vice versa; at missile bases and manufacturing facilities.
- More East-West cultural exchanges.
- More East-West television and radio satellite hook-ups.
- Growing influence of regional political and economic arrangements (such as EEC, OAS, ComEcon).

10. The centrality and increasing dominance of technology in the economy and society

- High technological turnover rate (See #16).
- Many technological advances (eg, the computer, robotics, CAD/CAM) directly affect the way people live and work.
- By 2001, Artificial Intelligence will be in almost universal use among companies and government agencies to help assimilate data and solve problems beyond the computer's range. AI's uses: robotics, vision and speech recognition, EDP, health and human services, administration and airline pilot assistance.
- By year 2001, expert systems are in universal use in manufacturing, energy prospecting, automotive diagnostics, medicine, insurance underwriting, and law enforcement.
- Superconductors operating at room temperature will be in commercial use by 2001 as supercomputers the size of three-pound coffee cans, electric motors 75 percent smaller and lighter than those today, practical hydrogen-fusion power plants, electrical storage facilities with no heat loss, analyzers that can chart the interaction of brain cells, and 200 mph trains that float on magnetic cushions.
- "Wireless hook-up" will simplify relocation of personnel, minimize delays in accomplishing new installations, and add to the ability of terminal equipment to travel with the individual by not forcing the user to travel to the terminal.
- There will be much growth in the engineering, technology, and health industries; many new biotechnology jobs will open up.

11. Integration of the national economy

- Gramm-Rudman-Hollings is forcing tradeoffs to be made across programs, e.g., a space shuttle vs. Food Stamps vs. aid to education.
- Under a new administration, there will be defense vs. social programs tradeoffs.

12. Integration of the national with the international economy

- 39% of parts used in manufacturing in U.S. are from a different country of origin; 37% of parts used by IBM are imported.
- Not limited to U.S.—Japan must sell internationally to offset energy and scarce resource imports.
- Nationalistic self-interest will continue to yield to international trade cooperation. Both developing and developed countries will

focus less on dominating economic competitors and, instead, will put efforts into liberalizing trade cooperation.

- Today $400 worth of health care is built into every Chrysler; $200 for every Japanese car; and $100 for every Korean car.

13. Growth of international economy

- Witness interactions among world's stock exchanges.
- The quality of products and services will be increasingly be emphasized.

14. The growth of research and development as a factor in economy

- R&D outlays, as percent of GNP (1982$), has varied narrowly (2.1-2.8%) since 1960 and has been rising steadily since 1978.
- R&D outlays are growing most rapidly in the electronics, aerospace, pharmaceuticals, and chemical industries.

15. High technological turnover rate

- Time interval (invention→innovation→imitation) is steadily decreasing; successful products must be marketed quickly.
- New production technologies will continue to be rapidly adopted.

16. The development of mass media in telecommunications and printing

- Telecommunications removes geographic barriers; satellite-transmitted data can be set into a computer in a place like the Caribbean by two people at 50¢/hour and transmitted back for less than $1.50—compared to having one person set the data here at $5.00/hour, minimum.
- *USA Today*, relying on satellite communications, is printed simultaneously at multiple sites every day.
- Currently, 57% of homes have cable TV; will reach 87% by 1992.
- Magazines in the year 2001 will be on floppy disks which allow the "reader" to interact, play with, and manipulate the information after inserting the disks into their PC.
- Mass media will be more personalized as consumers use pay-for-view television to select movies and entertainment. Viewers will download their choices from a teledelivery service, paying for the program when they see it.
- Racing fans will watch races and make bets from their homes via cable TV, placing their bets through handheld portable betting terminals connected to the track's on-line computer network.

Winnings will be automatically credited to the bettors' bank account; losers' bank accounts will be debited

- By 2001, new network architectures, operating synergistically with intelligence in terminal systems, will form the foundation on which an almost limitless variety of telecommunication services will be built. This will require adoption of technically sound standards for the interfaces between users and the network, as well as among network elements.
- Nearly unlimited bandwidth of fiber optics, coupled with evolving new network standards, and the ability to use software-defined networks, will result in new network topologies for transmission and distribution of networks. Improved linewidth lasers or dispersion-shifted fibers, multi-gigabit systems, coherent detection systems, LEDs for single-mode fibers, and integrated optical circuits will be in widespread use.

17. Major medical advances

- $100B in genetic engineering by 2000:
  - Artificial blood
  - Human growth hormones
  - Memory-recall drugs
  - Newborns with particular disease immunities.
- Medical advances have given us: artificial blood, limbs (feet, hands, arms, legs), hearts, spleens, lungs, and skin.
- Technology makes possible organ transplants, artificial organs, genetic engineering, etc., but raises ethical/moral issues: surrogate motherhood, how to equitably distribute capabilities, when to terminate extraordinary life support efforts.
- New computer-based diagnostic tools will be providing doctors with unsurpassed cross-section images of soft and hard tissues inside the body, thus eliminating much exploratory surgery.
- "Bloodless surgery," using advanced lasers will decrease patient trauma, decrease the length of hospital stays, and help lower medical costs.
- Brain cell and tissue transplants will be in the experimental phase by 2001 to aid victims of retardation and head trauma. Heart repairs will be done using muscles from other parts of the body. Transplanted animal organs will find their way into common use in humans. Laboratory-grown bone, muscle and blood cells will be used in transplants.
- Pacemakers will be made with shocks built in (like the paddles in the emergency room).

- More and better bionic limbs and hearts, drugs that prevent disease and not merely treat symptoms, body monitors that warn when trouble is brewing.
- 83% of doctors will be salaried by the year 2000.
- 53% of drugs prescribed will be generic by the year 2000.
- See also #49 and #50.

Educational Trends

18. Expanding education and training throughout society

- All Democratic candidates, and the front-running Republican candidate, advocate greater Federal spending for education.
- Needed: an annual $5 billion increase in federal spending for programs such as Head Start preschool program, federal aid for disadvantaged children, Job Corps and Job Training Partnership Act.
- Half-life of an engineer's knowledge today is 5 years; in 10 years 90% of what he knows will be on the computer.
- Eighty-five percent of the information on National Institutes of Health computers is upgraded in 5 years.
- Rapidly changing job market along with the changing requirements of new technologies will necessitate increased training across the board.
- Because of fundamental changes in the economy, there will be fewer and fewer well-paying jobs not requiring advanced training.
- Close to six million jobs will open up in the next decade in the highly skilled occupations—executive, professional, and technical.
- Up to 4 percent of the labor force will be in job retraining programs by the 1990s to upgrade skills and knowledge to keep pace with changing technologies and changing demands of the workplace.
- Schools will train both children and adults around the clock: the academic day will be lengthened to seven hours for children; adults will be working a 32-hour workweek and preparing for their next job in the remaining hours.
- State, local, and private agencies could play a greater role in training by offering internships, apprenticeships, pre-employment training, and adult education.
- Growth in professional alliances between high school and college faculty.

19. New technologies will greatly facilitate this process

- Job simulation stations—modules that combine computers, videodiscs, and instrumentation to duplicate job-work environments will be used in training.
- Telecommunications coursework with another school district, state, or county open up new vistas in education.
- Education becomes more individualized as new medias (interactive computer/videodisc) permit students to learn according to their needs and abilities.
- Personal computers with ultra-high resolution screens, 3-D graphics, high-level interactivity and artificial intelligence will enhance gaming and simulations used in education and training.

20. Greater role of business in training and education

- More businesses will be involved in schools, job-training programs, and community source programs.
- The investment by corporations in employee education and re-training, now some $80 billion a year, will double by 2001.
- The Job Training Partnership Act ($4.5B/year) allows greater communication between those who need jobs and those who need workers by calling on private business to help direct the training of unemployed workers.
- Most new jobs are generated by small businesses which cannot afford to pay for training; one-half of all funding for formal training comes from 200-300 large companies in business and industry.

21. Education costs will continue to rise

- Heavy pressure to control costs will emerge.
- Two-year colleges and associate degrees will grow.
- Loans rather than grants will constitute the main source of student financial aid.

22. Educational institutions will be more concerned with ways to assess outcomes and effectiveness of educational programs

- Faculty will support efforts to assess their classroom performance and effectiveness.
- Academic departments will support assessment of their academic programs' results and effectiveness.
- Greater emphasis will be placed by the public and the legislatures on the outcomes of public education.

23. Improved pedagogy—the science of learning—will revolutionize learning.

- Institutions will increasingly apply the growing knowledge about individual cognition to educational situations.
- The learning environment will not be as important in the future—individual will learn more on their own, the "places" of learning will be more dispersed, and the age at which things are learned will depend on the individual not tradition.
- Computer-supported approaches to learning will improve both techniques and allow a greater amount of material to be learned.
- The ultimate consequence may be a one-sixth reduction in learning time overall.
- Despite the new technologies and new approaches to learning, many students will still suffer from learning deficiencies.
- Alternative testing approaches will be widely used for learning feedback.

24. Universities will stress development of the whole student and how the university's total environment impacts that development

- Faculty will receive greater support from the administration for class-related activities.
- Individual students will receive more support from faculty and advisors with decisions about academic programs and career paths.

25. Reduction in size of higher education institutions

- Private commercial ventures will establish themselves as the proprieters of large electronic databases, eventually replacing the university library.
- Students will adopt the scholarship mode of learning, learning by consulting books, journals, etc., as professors and Ph.D. candidates do today.
- College and university instructors will find employment at secondary schools, in business-based education programs, and producing educational electronic software.
- More and more businesses are conducting research.

Trends in Labor Force and Work

26. Specialization

- Within professions (medical, legal, engineering, etc.) the body of knowledge which must be mastered to excel in a particular area precludes excellence across all areas.

- The same principle applies to artisans, too—auto mechanics, house builders.
- The information-based organization is dependent upon its teams of task-focused specialists.
- Globalization of the economy calls forth more independent specialists: for hundreds of special tasks, corporations will turn to consultants and independent contractors who will specialize more and more highly as markets globalize and technologies differentiate.

27. Growth of service sector

- As percent of labor force, shows steady growth: 1970-66.3%, 1980-70.7%, 1984-72.2%, 1990-73.5%, 1995-74.4%. These are Bureau of Labor Statistics projections; we think the figure will be about 88% by 2000.
- Service jobs have replaced the many well-paying jobs lost in manufacturing, transportation, and agriculture. Low-paying and often part-time, these jobs pay wages at half the level of manufacturing jobs.
- Approximately one million new jobs will be created in the less skilled and laborer categories in the next decade.

28. Further decline of agricultural and manufacturing sectors

- 1.7 million manufacturing jobs disappeared between 1979 and 1985.
- As percent of labor force, growth/extraction industries (agriculture & mining) show slow decline: 1970-4.6%, 1980-3.5%, 1984-3.7%, 1990-3.3%, 1995-3.0%.
- As percent of labor force, fabrication industries (construction & manufacturing) show: 1970-29.1%, 1980-25.8%, 1984-24.0%, 1990-23.2%, 1995-22.6%.
- These are BLS projections; we think the figures for manufacturing are too high—more like 9% by 2000.
- By 2001, percent of labor force in manufacturing will be 9.7 percent, down from 18 percent in 1987. However, productivity will have increased 500 percent in those industries which have become more automated, added robotics, and remained flexible in their production.

29. Growth of information industries, movement toward an information society

- (This is an outgrowth of #2).
- By the year 2000, we predict that 88 percent of the labor force will be working in the service sector. Of that 88 percent, 44 percent will be working in the information industry, 22 percent of which will be working at home.
- Information is the primary commodity in more and more industries today.
- Computer competence will approach 100 percent in U.S. urban areas by the year 2000.
- Seventy percent of U.S. homes will have computers in 2001, compared with 18 percent now; more than three-fourths will be equipped to permit communication with the public switched network.
- Computers in the home mean that we will have vast new powers over information and services. These include: education, work, health care, shopping, banking and finance, reservations, etc.
- Interactive cable television means a need for electronic newspapers, electronic shopping, and electronic banking at home.
- Personal computers will be used for voting, filing income tax returns, applying for auto license plates, and taking tests such as college entrance exams and professional accreditations.
- Five of the ten fastest growing careers between now and 2001 will be computer-related, with the demand for programmers and systems analysts growing by 70 percent.
- Users will be able to access terminal devices far simpler than today's as local cubic arrays of co-processors in homes and offices access function-specific subnets via fiber-based fast-packet-switched channels.
- ISDN will change the economics of data transmission and acquisition by allowing data to be transmitted in its digital form without the expense of signal processing done by modems, and by allowing data to share telecommunication facilities in a way that builds on the voice base from the points of view of resource use (switching and transmission) and operational expense.
- Cubic-architectured local nodes sending and receiving fast packets over fiber loops in ISDN-like formats will serve as a steersman for multiple expert systems, providing medical advice in advance of likely illnesses, execution of financial transactions proactively, travel and entertainment options before reservation limits are exceeded, and all forms of education, as well as basic voice and data communication. In short, telecommunication will become

infinitely more transparent as the metaphor bridging technologies becomes more natural.

- Major change ISDN will have by 2001 is to bring data capability to the relatively small user. ISDN will provide access to data bases (real estate listings, inventory, and financial information) at much less cost and over much greater distances.
- High technology industries are being encouraged in many states' economic development plans, yet in reality these industries account for only 4-5% of the new jobs created annually. However, new jobs are opening up in businesses that use computers and other high technology equipment.

30. More women enter the labor force

- Drivers: increasing volume of work can be done at home, expanding child-care facilities/services, and the economic need to have income from both spouses.
- Female labor force as percent of female population: 1950-31.4%, 1960-34.8%, 1970-42.6%, 1980-51.1%, 1986-54.7%.
- Expect new demands for child care as approximately 63% of new entrants into the labor force between 1985 and 2000 are women.
- Businesses will seek to fill labor shortages with stay-at-home mothers by offering child-care programs and job sharing.

31. Women's salaries comparable to men's

- Women's salaries as percent of men's: 1960-61%, 1979-62%, 1980-64%, 1983-67%, 1984-68%, 1985-68%, 1986-70%.
- We think this figure will be 85% or more by 2000.
- Historically, women's salaries in California and north of the Mason-Dixon Line have been higher (currently, 87% of men's); south of the Line they have been lower (currently, only 55%).

32. More blacks and other minority groups entering the labor force

- Black workers as percent of civilian labor force: 1970-11.1%, 1975-9.9%, 1980-10.2%, 1984-10.6%, 1985-10.7%, 1990-11.1%, 1995-11.5%.
- Hispanic workers as percent of civilian labor force: 1980-5.7%, 1981-6.0%, 1982-6.1%, 1983-6.3%, 1984-6.6%, 1985-6.7%.
- Minorities account for 40 percent of AIDS cases, yet minorities constitute only 16 percent of the US population.

33. Later retirement

- Life expectancy is increasing.

- Retirement age of 70 by 2000.
- Military retirement age will be extended.
- Civil Service retirement plan will be converted to Social Security.

34. Decline of unionization

- Union membership as percent of employed wage & salary workers: 1975-28.9%, 1980-23.2%, 1982-21.9%, 1983-20.1%, 1984-18.8%, 1985-18.0%.
- UAW projections: 14% by 1990, less than 10% by 2000.
- Continual shift in jobs toward no-union states or right-to-work states.

35. Growth of pensions and pension funds

- Private pension and government retirement funds as percent of total institutional assets: 1970-4.2%, 1975-4.8%, 1980-5.6%, 1985-6.3% (2.7% average annual increase over 1970-1985 period).
- There will be more people in the labor force for a longer period.

36. Movement toward second and third careers and midlife changes in career

- Career changes every 10 years, average.
- Lack of commitment to the job is illustrated by the results of a recent Louis Harris poll: only 39% of workers say they intend to hold the same job 5 years from now that they hold now; 31% say they plan to leave their current work; 29% don't know (see #38 below).

37. Decline of the work ethic

- Tardiness is increasing.
- Sick leave abuse is common.
- SAT scores have dropped.
- Job security and high pay are not the motivators they once more because there is a high degree of social mobility and people seek job fulfillment (48% of those polled say they work because it "gives feeling of real accomplishment").
- Fifty-five percent of the top executives interviewed in a recent Louis Harris poll say that erosion of the work ethic will have a major negative effect on corporate performance in the future.
- Yet, two-thirds of Americans would like to see an increase in the length of the work week rather than shorter hours.

38. More two-income couples

- Two-earners as percent of all married couples: 1960-28.5%, 1970-37.7%, 1980-46.2%, 1985-49.0%, 1990-52.0%, 1995-54.6%, 2000-56.6%.

39. Shortage of labor, low wage-rate workers

- The decline in the birthrate in the 1960s and early 1970s means a smaller number of young people entering the job market today. The number of jobs is increasing, creating entry-level labor shortages expected to increase in the 1990s, especially in the service sector.
- This may translate to more entry-level job opportunities for high school graduates as companies train them on-the-job.
- Institutions of higher education, business, and the military will all vie for youths 16- to 24-years old as they shrink from 30% of the labor force in 1985 to 16% in the year 2000.
- The military (Army and Navy) has seen the education levels of recruits drop as competition from the private sector intensifies.
- Untapped resources include: the retarded and handicapped and stay-at-home mothers. Businesses will also increase automation and seek to attract more foreign workers.
- Restaurants may turn to more self-serve items. Hotels, restaurants, fast-food places, convenience stores, retailers, and businesses needing beginning computer and clerical skills will be especially hard hit by this labor shortage.

Management Trends

40. More entrepreneurs

- Number of self-employed people in US increased 24% from 1974 to 1984 and is growing at four times the rate of salaried workers.
- Between 1950 and 1970, the number of new business incorporations jumped from under 100,000 to over 300,000 annually; in 1984 the number of new business start-ups hit a record 600,400.
- More and more mid-career professionals will become entrepreneurs as they are squeezed out of the narrowing pyramid in large companies. This is because in 2001 only one person for every 50 will be promoted whereas in 1987 it was one person for every 20.
- During the decade from 1970 to 1980 small businesses started by entrepreneurs accounted for most of the 20 million new jobs created.

- By the year 2000, 85% of the labor force will be working for a firm with less than 200 people.

41. They typical large business will be information-based, composed of specialists who guide themselves based on information from colleagues, customers, and headquarters.

- Decision processes, management structure, and modes of work are being tranformed as businesses take the first steps from using data to using information (data that has been analyzed and diagnosed).
- The advent of data-processing capacity has allowed this transformation of data to information.
- Information-based organizations require more specialists who will be found in operations, not at corporate headquarters
- Upper management will clearly state performance expectations for the organization, its parts, and its specialists and supply the feedback necessary to determine if results have met expectations.

42. Typical large business in 2010 will have less than half the levels of management of the typical large business today and about one-third the number of managers

- Middle management will all but disappear as information flows directly up to higher management for analysis.
- Computers and information management systems enable the span of control to increase from 6 to 21; fewer mid-level managers needed.
- With major firms "trimming the fat," the pyramid will be flattened, with the specialists on the bottom.
- Opportunities for advancement will be few because the opportunities will come within the narrow specialty.
- Process of finding top managers will be extremely difficult.
- As the information-based organization replaces the typical business of today, there will be a greater need to prepare professional specialists to be business executives and business leaders in these organizations.
- Thus, the values and compensation structure of business will have to change radically.

43. The command-and-control model of management will be a relic of the past as the information-based organization becomes the norm

- Manual and clerical workers are being replaced with knowledge workers.
- Information technology is the driving force.

- Expect changes in management styles toward more participation by workers on a consultative basis.

44. The actual work will be done by task-focused teams of specialists

- The traditional department will assign the specialists, set the standards, and serve as the center for training.
- Research, development, manufacturing, and marketing specialists will work together as a team on all stages of product development rather than keeping each stage separate and distinct.

Trends in Values and Concerns

45. General shift in societal values

- Family ethic→"we" ethic→"me" ethic.
- Shorter work week is coming (Sweden is now at 36 hours, West Germany 37, headed for 35 hours).
- Promiscuity used to be inhibited by fears of "conception, infection, detection;" infection (eg, herpes, AIDS) still stands, but the others have fallen, especially the social stigma associated with "detection."
- We used to live to work; now we work to live.

46. Diversity as a growing, explicit value

- The old idea was to conform, blend in with the group; this is giving way, especially among minorities, to pride in cultural heritage and a general acceptance of differences in all aspects of society. The interest and acclaim which Alex Haley's *Roots* generated is an example. Sexual preference is another.

47. Increasing aspirations and expectations of success

- Continued high emphasis on economic success.
- Growing numbers of entrepreneurs (See #53).
- We predict that 85 percent of the labor force will be working for a firm of less than 200 people by the year 2000.
- Aspirations are there but the means may not be; only 25% of high school graduates graduate from college.
- Without higher education, expectations may never be met: in 1986, male high school graduates not enrolling in college were earning an average of 28% less in constant dollars than a comparable group in 1973.
- There are, in addition, more young people who report no earnings, up from 7% of all 20- to 24-year-old men in 1973 to 12% in 1984.

48. Growth of tourism, vacationing, and travel (especially international)

- More leisure time available (See #44).
- More disposable income, especially from 2-earner families.
- Number of US travelers to foreign countries increased at 5% per year rate (1981-1985).
- Number of international travelers in/out of US increased at 1.3% per year rate (1981-1985).
- International currency exchange rates directly affect travel; now that the dollar has fallen, we can expect more foreign visitors.
- By 2001, air travel for both business and pleasure will be twice the 1985 rate.
- Tourism will be spurred as printed brochures yield to video as a source of information about vacation destinations. Programs include current, detailed information on accommodations, climate, culture, currency, language, immunization and passport requirements.
- One of every ten people in the United States will be working for the hospitality industry by the year 2000.

49. General expectations of high level of medical care

- Catastrophic health care insurance plans will be approved by 1990.
- By 2000, 85% of doctors will be salaried.
- There will be more nurses available for community-based health care; salaries for nurses will rise.
- Physician assistants will be able to prescribe drugs in 38 states by 2000 (17 states grant this authority now).
- Medical costs will rise more slowly by 2000:
  - + Drug costs will decrease; 53% of drugs will be generic
  - + 17 states will authorize druggists to prescribe drugs (only one state [Florida] grants this authority now).
- More local medical outlets (surgi-centers, Doc-in-the-Boxes, etc) will make high quality medical services available at the local level.
- There will be surplus of 100,000 physicians by 2001. The result: doctors will pay closer attention to individual patient care, office hours will be extended to evenings and weekends. Families will receive much additional medical information via home communication centers. Prescriptions will be written, transmitted, and filled via computer.
- By 1990 organizations such as Allied Respiratory Care in Miami, FL, and similar organizations in New York, Pennsylvania, and Ohio

will care for over half of AIDS patients at home and others in special AIDS wings in hospitals.

50. Growth of physical culture and personal health movements

- Emphasis on preventive medicine will grow. By 2001, some 90 percent of insurance carriers will expand coverage or reduce premiums for policyholders with healthy lifestyles.
- Personal wellness, prevention, and self-help will be the watchwords for a more health-conscious population. Interest in participant sports, exercise equipment, home gyms and employee fitness programs will create mini-boom industries.
- Sixty-six percent of those polled in a recent Harris poll claimed to have changed their eating habits in the past two years. Americans today eat lighter fare than in 1976, consuming 15 pounds more chicken, a pound more fish, and 22 more gallons of low-fat milk per capita.
- Consumer purchases show a per capita decline in liquor consumption, from two gallons in 1979, to 1.8 gallons in 1984. There was a noticeable shift away from hard liquors to wines, beers, and bubbly waters.
- General trend towards non-smoking: currently 35 percent of men smoke, down from 52 percent two decades ago; 29 percent of women smoke, down from a 34 percent peak.
- There are many more magazines on health care and fitness than in the past.
- People will be more inclined to take steps to control stress as they realize that 80-90 percent of all diseases are stress-related.

51. General expectations of high level of social service

- Adequate Social Security income if retirement age goes to 70.
- More services/accommodation for the deaf, blind, disabled, poor, infirm, and aged.
- $50B by 2000 for AIDS research and treatment.
- Every taxpayer will be paying $500 a year to care for AIDS patients in the year 2000.
- More psychiatric help—for alcohol, drug abuse.

52. Growth of consumerism

- More consumer agencies and organizations.
- Consumer information (eg, unit pricing, content labels, etc) will proliferate via packaging, TV, special studies/reports.

- With a wealth of information, consumers will be able to become smarter buyers.

53. Growth of women's liberation movement

- "Good old girl" networks will become increasingly effective as women fill more positions in middle and upper management.
- The infrastructure is evolving which allows women to make more decisions and to exercise political power, especially where both spouses work. The effect will be:
  + more child-care services
  + greater employment opportunities
  + more equal male-female pay rates (but we don't think the 'comparable worth' concept has a future).
- One indication of the growing dependence on the wife's income: life insurance companies are selling more policies to women than to men.

Family Trends

54. Decline in birth rates

- Birth rate per 1000 population: 1950-24.1, 1960-23.7, 1970-18.4, 1980-15.9, 1985-15.7, 1990-15.4, 1995-14.0, 2000-13.0.

55. Increase in rates of family formation and marriage

- Marriage rate per 1000 unmarried women, 15-44 years old: 1970-140.2, 1975-118.5, 1980-102.6, 1983-99.3, 1984-99.0.
- Fear of AIDS may be turning this decline into an increase.

56. Decrease in number of divorces

- Rate per 1000 married women, age 15 and over: 1970-14.9, 1975-20.3, 1980-22.6, 1983-21.3, 1985-21.7.
- Fear of AIDS may cause a further decline.

57. Growth of leisure

- Automation and computer applications in manufacturing (specifically CAD/CAM and CIM) will result in a shorter average work week.
- Both spouses working plus smaller tax bite means more disposable income to spend on leisure activities.
- As more people enter the labor force, the workweek will drop to 32 hours, i.e., more leisure time.

58. Growth of the do-it-yourself movement

- The high cost of hiring outside workers motivates people to do the work themselves.
- There will be more leisure time available to spend on do-it-yourself projects.
- Availability of more tools and supplies aimed at the do-it-yourself market will spur the movement.

59. Improved nutrition and wellness movement with the consequent increase in life expectancy

- (This is an outgrowth of #49 and #50).
- The average child born in 1987 will live to be 78.5 years old (average male=76 years old; average female=81 years old).
- Since the turn of the century, every generation lives three years longer than the last.

60. Isolation of children from the world of adult concern

- Movement toward over-protecting children from the outside world and the consequences of their acts.
- More children are being placed in day-care centers and preschools. Many are near old-age homes where young and old can share a common bond.

61. Protracted adolescence

- Median age at first marriage, male: 1970-22.5, 1975-22.7, 1980-23.6, 1983-24.4.
- Median age at first marriage, female: 1970-20.6, 1975-20.8, 1980-21.8, 1983-22.5.

62. More single heads of households—the new poor

- As percent of all households, male and female: 1960-10.7%, 1970-10.6%, 1975-12.1%, 1980-12.9%, 1986-14.3%.

63. Growth of already large aged population

- Persons age 65 and older as percent of all ages: 1960-16.7%, 1970-20.1%, 1980-25.7%, 1985-28.5%.
- Persons age 85 and older as percent of all ages: 1960-0.9%. 1970-1.4%, 1980-2.3%, 1985-2.7%.

64. The replacement of the extended family by the nuclear family and other living arrangements

- More older people retain their mobility and independence.
- Older person's family can be near but not next door.

- Prefabricated (manufactured) housing will be cheaper than conventional construction, enabling older persons to afford housing where they want to live, in the suburbs, for instance.

Institutional Trends

65. Decrease of Federal government—growth of state and local governments

- Paid, full-time Federal civilian employment: 1975-2582k, 1980-2498k, 1985-2004k.
- Paid, full-time state & local employment: 1975-9397k, 1980-10314k, 1985-10568k.
- More block grants are being given to state and local governments.

66. Growth of big business (deregulation)

- (This is an outgrowth of #60).
- Big are getting bigger, small are getting smaller.

67. Growth of multinational corporations

- Parts for 39 percent of products built in the United States come from a different country of origin.
- We predict that the multinationals may be affected by the increasing number of AIDS cases in Africa and around the world since many firms rely on indigenous workers.

68. Growth of futures studies and forecasting

- Need to know the consequences of expensive or irreversible acts before the decision is taken.
- Need to anticipate problems which could develop.
- Future-oriented organizations have moved forward steadily since the early 1960s, when they first appeared. The momentum developed in the 1970s can be expected to grow, and such organizations will have increasing influence on decision-making in government, business, and industry in the years ahead.
- A conservative estimate of the number of futurist groups in the world in 1975-76 by the World Future Society was 300; a spokeswomen from the Society believes the number of organizations has increased tremendously in the ensuing years.
- There is a congressional clearinghouse for futures research.
- The World Future Society reports a record membership.

69. Growing demands for accountability in the expenditure of public resources

- Computers permit information (ie, audit trails) to be kept, facilitating accountability.
- Greater emphasis will be placed by the public and the legislatures on the outcomes of public education.

70. Growing demands for social responsibility

- Union Carbide's Bhopal disaster.
- Nuclear power plants.
- Auto seat belts (especially seat belt use laws).
- Testing for AIDS.
- Children's toys are being tested for safety.

71. Bimodal distribution of institutions as the big get bigger, the small survive and the middle is squeezed out

- Ten domestic carriers today control 80 percent of the market, leaving the smaller domestic carriers with only 20 percent. By 2001 there will be only three major domestic carriers.
- Currently there are 20 major automakers around the world with market shares ranging from 18.1 percent (GM) to 1.0 percent (BMW). By 2001, there will be only five giant automobile firms; production and assembly will be centered in Korea, Italy, and Latin America.
- By the year 2000 there will be three major corporations making up the information industry: IBM, Digital, and Apple.
- Oft-times today the manufacturer sells directly to the dealer, skipping the middle-man.
- Trend extends to:
  - Stores: big chain department stores and at the opposite end the discount stores succeed.
  - Hotels: large hotel chains and at the other end the economy hotels thriving with those in the middle being squeezed out.
  - Restaurants: elegant dining and at the opposite end cheap, fast food restaurants making it at the expense of sit-down family restaurants in the middle.
  - Hospitals: growth in hospital corporations and at the opposite end walk-in medical centers.
  - Agriculture: the farmer making over $500,000 is flourishing; the farmer who makes under $100,000 is surviving; the middle-income farmer is going bankrupt.
  - Banks: growth of interstate and international banks and at the other end the local banks pushing service are succeeding.

- Financial Institutions: the recent merger of E.F. Hutton and Shearson-Lehman Brothers illustrates this trend while at the other end the local broker is making it.

- This trend leads us to believe that AT&T may be reconsolidated in the mid-1990s.
- What we see across the board with institutions is also happening within the organization as the traditional pyramid is flattened and middle management is squeezed out. (See #42)